

# METHOD AND APPARATUS FOR GENERATING N-ORDER COMPENSATED TEMPERATURE INDEPENDENT REFERENCE VOLTAGE

## Abstract

A reference voltage generator includes a plurality of signal generators for producing  $N+1$  signals respectively corresponding to  $N+1$  temperature dependent characteristics, a combining module coupled to the signal generators for combining the  $N+1$  signals to form a combined signal, and a signal to voltage converter coupled to the combining module for generating a compensated reference voltage according to the combined signal. The signal generators include  $N+1$  devices having p-n junctions and each device has a specific temperature dependent characteristic corresponding to the voltage across a p-n junction, such as the base-emitter voltage of a transistor. By scaling the  $N+1$  signals, a reference voltage at a predetermined value is generated and has  $N^{\text{th}}$  order temperature compensation.